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1-1-2013

## Could on-the-job embeddedness help bind FIFO workers to their jobs?

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Scott, G. B., Sitlington, H. B., Susomrith, P. , & Brown, A. R. (2013). Could on-the-job embeddedness help bind FIFO workers to their jobs?. In 27th Australian and New Zealand Academy of Management Conference 2013 : managing on the edge, 4-6 December 2013, Hobart, Tasmania. Hobart, Australia. Australian and New Zealand Academy of Management . Available [here](#)

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**Stream Number 5 Human Resource Management**  
**Competitive Session**

**Could On-the-job Embeddedness Help Bind FIFO Workers to Their Jobs?**

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## 05. Human Resource Management Competitive session

### Could On-the-job Embeddedness Help Bind FIFO Workers to Their Jobs?

**ABSTRACT:** Fly-In Fly-Out (FIFO) employees in the mining industry in Western Australia have had high levels of turnover, resulting in high costs in recruitment, training and lost production. This research is seeking to understand the reasons for high turnover in this somewhat unusual group of employees. Whilst the research has utilised the more traditional approach to understanding labour turnover, that is that dissatisfaction with job or company and the availability of viable alternatives lead to intention to quit, preliminary results indicate that job embeddedness theory, may provide a better understanding of why FIFO workers choose to stay in their jobs. This outcome raises questions about embeddedness theory itself, namely whether on-the-job embeddedness is a stronger predictor of staying than is off-the-job embeddedness.

**Keywords:** retention, job satisfaction, commitment, loyalty.

The mining industry in Western Australia has experienced rapid growth over the past decade, and contributes significant economic benefit to both federal and state economies. Although mining companies are reluctant to divulge the extent of employee turnover in the industry, conservative estimates put it between 20 and 30 per cent (Beach, Brereton, & Cliff, 2003). The cost of turnover to an organisation can be substantial, for example, Beach et al. (2003) estimated that the turnover cost for a 300 employee FIFO mine was in the order of A\$2.8 million.

Indications (CMEWA, 2011) are that in the mineral and energy sector up to 46,800 employees are in FIFO operations (about 52 percent of the total workforce) and that 46 percent of publicly owned mining companies in Western Australia use FIFO operations. Estimates suggest by 2015 there will be 110,000 people employed in mining in Western Australia with about 63,500 (57%) in FIFO arrangements (CMEWA, 2011).

The FIFO approach to work arises due to the concentration of large deposits of valuable minerals in the most remote locations of the Western Australian north (Kimberley and Pilbara regions primarily). As these regions are sparsely populated and have few towns with the necessary infrastructure to support large numbers of workers, mining companies fly workers to mine sites where they live and work for varying periods of time. FIFO workers adhere to a regular pattern of onsite work

interspersed with being flown back to their homes for rest and recreation. These patterns vary widely between sites and companies as well as stages in the construction, operation and wind down of the mine (BBC, 2003). Some common patterns are: 2 weeks, on site, 1 week off, 8 days on site and 6 days off, 6 weeks on site and 3 weeks off, with patterns varying between relatively short, for instance 8 days on 6 days off and 8 weeks on and 2 weeks off. Work while on site is intensified, with miners usually working 12 hour shifts in hot and dirty conditions.

There has been little previous study into the factors which influence labour turnover in the FIFO mining industry. This research was undertaken to identify reasons for turnover amongst this sector in order for organisations to better manage FIFO voluntary turnover. FIFO workers themselves were surveyed to determine what factors were likely to influence them to leave their companies, or the industry. The most significant study of turnover in FIFO operations in Australia by Beach et al. (2003) compared turnover levels between seven mining operations in Queensland and Western Australia. Amongst the mines included in the study, five operated on a FIFO basis, with two days commute mines included as a control. The study found that high turnover was not a necessary consequence of FIFO operations and that specific management initiatives could assist to better manage the turnover rate. One of the limitations of this study, however, was its reliance on information that was readily available from sites and through telephone and email interviews, primarily with human resource and management personnel. Employees were not surveyed and the study excluded the contractor workforce (those employed by a third party labour hire firm) who also work on a FIFO basis and are a large component of the mining workforce in Australia.

### **LITERATURE REVIEW**

Much of the traditional literature on general voluntary turnover has focussed on factors that contribute to dissatisfaction and the perception of viable alternatives on the premise that voluntary turnover results from dissatisfaction with job and/or company, combined with availability of alternative opportunities. Factors that contribute to dissatisfaction are seen as those within the organisation - job dissatisfaction, low organisational commitment and poor group cohesion which lead to withdrawal cognitions and intention to quit (Griffeth, Hom & Gaetner, 2000). Outside factors may include the

economic environment, availability of job alternatives and personal factors such as number and age of children.

More recently other models have been proffered that view turnover from alternative perspectives. Lee and Mitchell (1994) and Mitchell, Holtom and Lee (2001) developed and tested what they call an ‘unfolding’ model of turnover. This model included four pathways to turnover with an important component being a shock (jarring event) or script (a plan) which explains the decision to quit. Tests of their model (Lee, Mitchell, Wise & Fireman, 1996; Lee, Mitchell, Holtom, McDaniel & Hill, 1999) with nurses and accountants found shocks were more important triggers for quitting than job dissatisfaction. Indeed this model looks at the cognitive process of deciding to quit, how that decision process ‘unfolds’, and allows for a broader range of individual factors that may influence this decision. Another model Mitchell, Holtom, Lee and Graske (2001) discuss that also moves away from the ‘dissatisfaction and alternatives’ approach, is the notion of ‘job embeddedness’. This approach focuses more on why people stay in organisations rather than why they leave, positing that the more ‘embedded’ people are the less likely they are to voluntarily leave their jobs. Mitchell et al. (2001) liken embeddedness to a web of connections and nodes where the number as well as the distance or strength between connections varies. Leaving a job will disrupt this web of connections which therefore impacts on such decisions. Mitchell, Holtom, Lee, Sablinski and Erez (2001) describe embeddedness as being the range of factors which ‘enmesh’ workers, making it difficult for them to leave their jobs. Embeddedness is described as two dimensional, including both on- and off-the-job connections. In both cases on-the-job and off-the-job dimensions are seen to comprise links, fit and sacrifice:

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Insert Figure 1 about here

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Whilst the on-the-job elements are clearly applicable to FIFO workers, the off-the-job elements are perhaps less relevant. Mitchell, Holtom, Lee and Graske (2001) indicate for example that off-the-job links include organisational support for volunteering through allowing time off work, discounts on housing in the local community and company introductions to local community groups and activities.

Off-the-job fit is described as including opportunities for flexible work arrangements to enable attendance at family or community events and off-the-job sacrifice including company access to child care, company investment in off the job training opportunities and personally focussed rewards for long term employment. Earlier this aspect of the embeddedness model was referred to as “community embeddedness”, however the definition of community was problematic as there are many different definitions of the term. (Zhang, Fried & Griffeth 2012, p. 224). Generally the term “community” was associated with a geographical location, yet for FIFO workers their geographical locations are widely dispersed. Off – the – job embeddedness, according to Feldman, Ng and Vogel (2012) “is viewed as equal in force to on-the job embeddedness in binding employees to their jobs” (p.214).

However, a study of government employees and nurses undertaken by Dawley and Andrews (2012) tests the relative strengths of on-the-job and off-the-job embeddedness in predicting turnover intention. They conclude that on-the-job embeddedness is the stronger predictor of turnover intention. Dawley and Andrews also tested the relationship of the two job embeddedness measures and concluded that the higher the embeddedness on the job, the lower the influence of off-the-job embeddedness on turnover intention. Indicating that for those who are highly embedded in their jobs, off-the-job factors are less likely to impact turnover intentions.

Holtom and Inderrieden (2006) investigated the relationship between the unfolding and job embeddedness models from a sample drawn from the Graduate Management Admission Test Registrant Survey to determine connections. Unsurprisingly, their results indicated that strong job embeddedness was negatively correlated with turnover. They also found that the ‘shocks’ (or jarring events) of the unfolding model have to be seen in context. Employees with strong job fit may have to experience a stronger ‘shock’ to consider leaving. So their embeddedness may have a moderating effect on the impact of such ‘shocks’. Conversely, those with weaker embeddedness or ‘fit’ to the organisation or community may be more sensitive to ‘shocks’. They are therefore more likely to leave (p 441).

## **RESEARCH DESIGN**

In this study we drew primarily from the traditional ‘dissatisfaction’ approach to labour turnover, however also included elements of the unfolding model (shocks and scripts) as anecdotally many FIFO workers reported that they went into the mining industry with a plan, such as buying or paying off a house, putting children through private school education or other (usually financial) goal. While we considered more comprehensively testing the job embeddedness model we decided against this due to the two dimensional nature of the model, incorporating off-the-job (i.e. community) as well as on-the-job embeddedness dimensions. Since most FIFO employees live in geographically diverse locations around (and sometimes outside) Australia we felt the applicability of the ‘off-the-job’ embeddedness dimension was questionable. By definition FIFO workers do not live in identifiable, job location related communities so we felt their links with their ‘home’ communities may be weak due to the transient nature of their work and subsequent short periods of time at home. Further, we considered that FIFO workers are likely to find it difficult to commit to regular community activities such as volunteering or team sports due to their unconventional roster patterns.

Drawing together the Job Satisfaction/Organisational Commitment and Shocks/Scripts models, we developed the following model to guide our research (Figure 2). This model combines the traditional approach of job satisfaction/organisational commitment contributing to turnover intention and subsequent turnover, with the unfolding model of scripts/shocks contributing to turnover intention. We also examined well established individual and organisational factors that might impact on satisfaction and commitment together with industry specific items identified through a focus group conducted with FIFO mining industry HR representatives.

Given the industry reputation for relatively high salaries and anecdotal evidence of significant movement of employees within the industry (i.e. to competitors) we also considered it possible that the factors contributing to turnover intention where employees leave the industry may be different to those that result in movement out of the company, whilst remaining in the industry. We therefore considered both factors contributing to industry turnover (employees leaving the mining industry) amongst FIFO employees, and factors contributing to company exit (employees leaving the company for an industry competitor) amongst FIFO employees.

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Insert Figure 2 about here

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## METHODOLOGY

Following our review of the literature we invited human resource managers from resource sector organisations operating on a FIFO basis to participate in a focus group. The purpose of the focus group was to identify whether those dealing directly with employment of FIFO workers considered there were any unique factors (e.g. specific roster patterns, distance to site) or specific employee groups (e.g. unskilled, professional, trades) amongst the FIFO population that should be considered in addition to the traditional items.

This process confirmed the relevance of many of the traditional factors as well as highlighting the anecdotal importance of roster patterns, comparative remuneration arrangements (i.e. between firms in the same industry) and employee scripts. Interestingly, whilst the research team anticipated possible differences between industry-specific employee groups (e.g. geologists, mining engineers) and generic employee groups (e.g. accountants, HR practitioners) the focus group participants did not believe any appreciable difference in individual or organisational factors was apparent. The focus group participants emphasised the importance of team cohesion due to FIFO workers living and working in close proximity, in isolated locations/camps and for extended periods.

Following the focus group process and review of the literature, the research team developed a data collection instrument comprising three sections:

- Part A ‘Me, My Job & My Company’ – 46 items addressing turnover intention, job satisfaction, organisational commitment, work team satisfaction, goals/scripts using a 5 point Likert scale.
- Part B – 14 items covering specific aspects of turnover intention, roster arrangements and industry attachment. These questions were developed in conjunction with participating companies and were primarily designed to provide useful feedback to each company.



- Part C – demographic items including personal circumstances that may impact on scripts (e.g. number and educational stage of children), travel involved in accessing work site, industry and job experience. These questions allowed various groupings for further data analysis.

Surveys were pilot tested with mining industry employees and with company HR representatives to ensure face validity and ease of completion. Industry terminology was used wherever appropriate to create maximum acceptance and buy-in from FIFO workers.

Once companies had agreed to allow the researchers to collect data from their employees, surveys and information sheets about the research were provided to site representatives to distribute at shift commencement meetings along with reply paid envelopes for direct return to the researchers.

## **FINDINGS**

To date (mid 2013) we have collected data from 5 firms with over 200 individual surveys returned.

Data collection is ongoing but preliminary findings show some interesting trends.

### **Going well**

We found over 70% of respondents enjoy and are proud of their job. Overwhelmingly worksites are reported as being good with almost 90% indicating they are happy with site accommodation and over half are happy with site social activity.

Although we anticipated travel time to site may be a concern, this was not found to be widespread, with only around 30% indicating travel to site is an issue for them. However, travel to site takes many forms, from those living in Perth metropolitan area and catching a single flight to site, through to those living in regional centres, interstate or overseas whose travel to site involves multiple stages. For these workers in particular this perhaps depends on roster arrangements and frequency of making the trip to site.

### **Here to stay**

Despite concerns expressed in some areas, FIFO workers largely indicated they are committed to the industry, with three quarters strongly indicating they plan to remain in the industry and only a quarter indicating they would like to move out of FIFO work.

### **Is Promotion the Key?**

Since employees are committed to the industry but a number want to move out of FIFO, this raises questions regarding whether there are enough promotional opportunities available for firms to retain these workers in non-FIFO roles. Half those surveyed are seeking promotion in the company and likely to stay for promotion but a third are looking for promotion elsewhere. So career opportunities do appear to matter to this workforce.

### **Goals in mind?**

One of our key questions was whether FIFO workers enter this style of work with a specific goal in mind. The response was an overwhelming majority (60%) did enter FIFO work with a goal in mind, with a third planning to leave when that goal is achieved or their family circumstances change. Interestingly, however, between 30 and 40% indicated they were undecided about actually leaving when the goal is achieved. This provides further indication that there may be opportunities to retain even those who enter the industry with clear goals about when to leave.

### **Does Training Matter?**

Over 60% of respondents indicated the training they have received was good and that it is training that keeps them with the company, although only a small number thought training was actually broadening their opportunities. This suggests that companies may have an opportunity to influence retention by targeted training.

### **Comparing offers**

With so many different roster and swing patterns available, comparisons can be difficult. Approximately half the respondents indicated they like their roster with the remaining half less satisfied. Shorter rosters were more popular for most, especially younger employees.

In regard to pay, even though over half indicate their pay is satisfactory, 60% would still leave for a better pay offer and only a third think their pay is as good as others.

### **A case for on-the-job embeddedness?**

Whilst the initial findings are interesting to researchers and industry partners, it was the overwhelming strength of responses to questions about 'getting on with the gang' which was unanticipated. Over 70% of respondents indicated the most important things to them are:

- Getting along with colleagues
- Relationship with crew
- Culture at work site
- Feeling part of the team
- Good supervisor
- Company challenge

This finding is particularly interesting in regard to the job embeddedness model. Whilst we initially discarded this model due to our expectation that community embeddedness would not be applicable to this group due to their physical location, the findings suggest there is strong community embeddedness around work aspects of FIFO work, albeit in a slightly different way to the examples provided by Mitchell, Holtom, Lee and Graske (2001).

### **DISCUSSION AND CONCLUSIONS**

We set out to investigate factors that might impact on turnover intention amongst FIFO workers, since we considered their uniquely intertwined work/life arrangements may impact on their range of turnover triggers. After reviewing previous research on turnover and turnover intention, we considered the traditional satisfaction/opportunities model together with the unfolding (scripts/shocks) models would be relevant but not the job embeddedness model since FIFO workers do not have links to a local community, due to the nature of their work. We therefore focussed primarily on personal circumstances/demographics and organisation/workplace related factors.

Our reasoning in discarding the job embeddedness model was that the off-the-job embeddedness factors deal with links to and fit in the community as well as sacrifices associated with leaving the community. Provision of organisational support for volunteering through allowing time off work, discounts on housing in the local community and company introductions to local community groups were not seen as relevant since in this context 'community' is that associated with the workplace location. Similarly, flexibility to attend family or community events and need for child care are predicated on a local community which is not present in FIFO work. Since FIFO workers do not share

the same off-the-job community they are not likely to engage in shared community activities that would be sacrificed if they left the job not is it feasible for them to take time out of their work schedule for family or community events.

Further, in the case of FIFO workers, the location of their off-the-job community does not change if they change companies or sites and therefore seemed not to be impacted by this dimension. We therefore reasoned that off-the-job embeddedness factors would not be relevant in the FIFO case as there is no defined off-the-job community associated with their work location in which they would be 'enmeshed'.

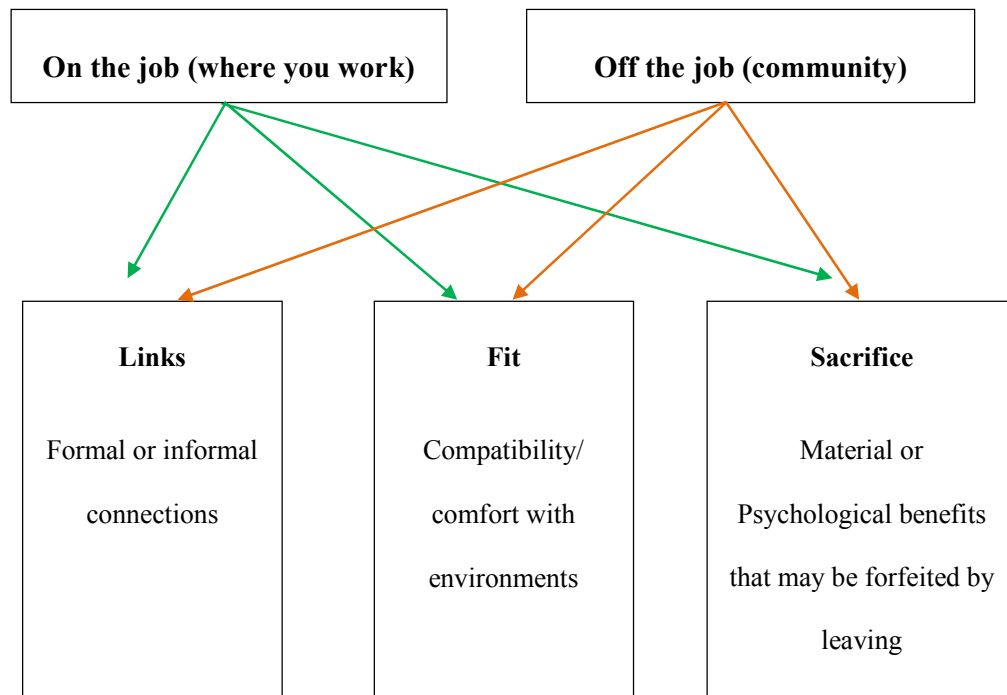
As we proceeded with data collection however, we began to see a strong focus on 'work-team' and 'work community' which made us begin to question whether on-the-job embeddedness may not be contributing to turnover intentions amongst FIFO workers, albeit not in the traditional sense. Whilst our reasoning in regard to FIFO workers' off-the-job community may be correct in regard to the home location community, in that FIFO workers do not have the conventional on-the-job and off-the-job communities referred to in the job embeddedness model. However, there appears to be another type of community in which they *are* enmeshed. This is the on-the-job community *at site* where they spend their non-working time with a community of their work colleagues. This appears to strengthen the importance of team relationships. Indeed the unique nature of this working arrangement, where FIFO workers travel to work, live together in the accommodation sites and work together on long, arduous shifts may result in strong and complex links on the job. According to Tanova and Holtom (2008) citing an upcoming work of Holtom, Mitchell and Lee, "the more elaborate web will have a stronger influence on an individual who is making changes in one part of the web because the changes will affect many other features of an individual's life" (p. 1555). Moreover, this unique form of working may be seen as more similar to that of the military. A study by Clinton, Knight and Guest (2012) of the three Services in the UK military asserted that the close working relationship and on the job support systems were perceived as "a "way of life" rather than just a job" (p. 112). The resulting links, fit and sacrifices were seen as highly pertinent to on-the-job embeddedness.

It is acknowledged that in regard to sacrifices, the FIFO lifestyle contributes to their capacity to develop links with their individual home communities which may not be available if they were undertaking a more conventional work pattern. For example, during the off site/home period of their roster cycle FIFO workers are able to become involved in day to day home life such as taking children to school, travel and even being involved in other businesses. Such activities would be curtailed by a conventional daily commuting roster. Therefore the off-the-job embeddedness model may be more applicable than we initially anticipated, but this appears to be a lesser contributing factor influencing decision to stay than is on-the-job embeddedness. As alluded to earlier, one of the common “sacrifice” elements of off-the-job embeddedness is the tangible impact of having to relocate due to leaving a job. This may involve moving away from community links, family, friends and amenities. For most FIFO workers this is usually not a consideration as a change in job within the industry necessitates no change in location- they already commute to work and are prepared to do so. For those who may leave the industry altogether the majority already live in large cities or regional centres where they are more likely to obtain alternative employment. This would suggest that the notion of “community” in the Embeddedness model needs to be carefully defined in light of the particular workforce being studied. “Community” for FIFO workers may constitute both on and off-the-job dimensions.

In terms of useful information for employers of FIFO workers seeking to reduce turnover, the relative strength of on-the-job embeddedness and off-the-job embeddedness is an important distinction. As suggested by Mitchell and Lee (2001) it would not be likely that the elements of the six dimensions of the job embeddedness model would be highly correlated. That is, that off- the- job links would be related to on-the job sacrifice, as an example (p.221). Currently there are two different approaches: a composite measure, which assumes each facet is equally weighted, and a global measure, which assumes that the sum is greater than the sum of its parts and asks general questions about embeddedness (Crossley et al., 2007). This global measure acknowledges that the people have already undertaken the complex internal processing of the links, fit and sacrifice aspects on and off the job and have made an assessment of their relative “embeddedness”. In the traditional work situation a global

measure may be appropriate but not so in the context of FIFO workers, as the relative strength of the on-the-job embeddedness versus off-the-job may not be uncovered. Therefore it seems that the way in which job embeddedness is measured may need to be carefully considered in the context of the work environment and employee characteristics. Additionally, the question needs to be asked whether the two elements of this model are truly indicators of embeddedness generally, or whether on-the-job embeddedness is a stronger predictor of employees' intention to stay in other industries as well, and that the unique nature of FIFO work simply serves to highlight the greater relevance of the on-the-job embeddedness measure.

Our finding would suggest that employers in the FIFO mining sector may be well advised to invest in strategies that increase off-the-job embeddedness to support the on-the-job embeddedness already experienced by their workforce. In order to investigate this, the next stage of our analysis will look at turnover intentions of different subsets of the data – primarily comparing the relative importance of on-the-job embeddedness items such as relationships with work colleagues by age group and family situation (marital status and children).



**Figure 1: Model of embeddedness**

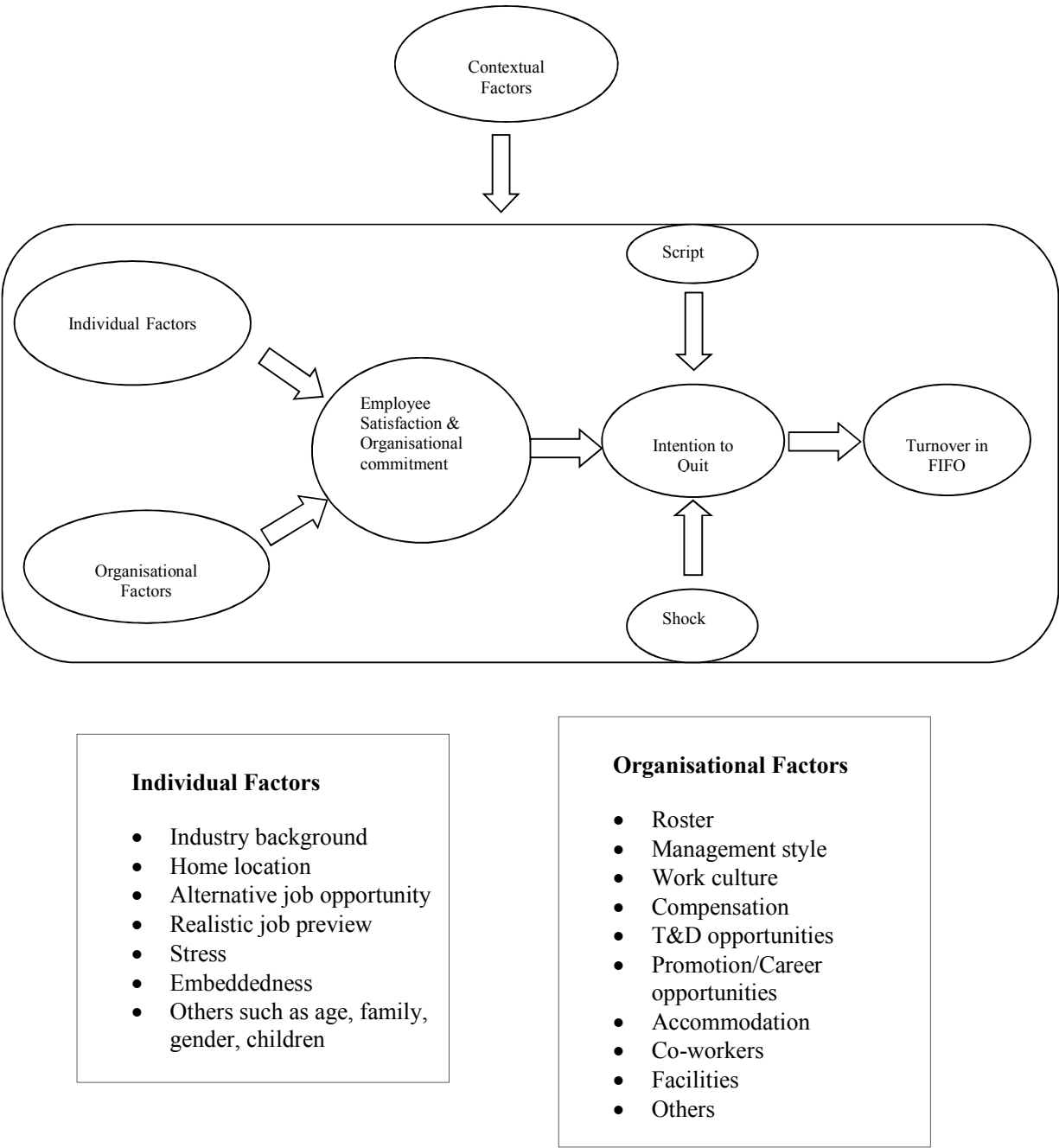


Figure 2: Model of Factors Influencing Turnover



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**Appendix 1 – Introduction to Conference presentation****HOW DIFFERENT IS WORK FOR FLY IN FLY OUT WORKERS?**

While most of us get up in the morning, breakfast at home and then take the bus, train or car to our place of work, the FIFO worker's first destination on the way to work is the airport. In Western Australia most FIFO workers live in Perth or regional Australia and the first part of the journey is to Perth Airport. Some workers live further afield: interstate or internationally and in the main they will fly to Perth Airport to link to flights to their site. Increasingly there are dedicated flights from other airports (Busselton, for example) to remote mine sites.

At the terminal our FIFO worker will join many of his or her colleagues joining the same flight to work. On touch down at the destination airport workers are often bussed en masse to the mine accommodation site. These sites, constructed specifically to house the work force to operate the mine for its lifespan, can house anything from a couple of hundred workers to over 1000.

The newer camps provide for every need of their residents. Food is plentiful and varied and prepared and served by qualified hospitality staff. There may be a canteen plus an outdoor barbeque area with drinks (including alcohol) for purchase. These sites usually provide a well-equipped gymnasium, tennis courts, swimming pool and activities supported by a Healthy Lifestyle Coordinator.

The accommodation provided are colloquially known as "dongas", which are transportable, modular buildings used extensively in the mining industry. They can be adapted for nearly any purpose- offices, storage, training facilities, as well housing for workers. In modern camps dongas provide basic but adequate accommodation including en suite bathroom facilities. They provide provision for completely blacking out daylight as the 24 hour mining operation and 12 hour shifts

mean that workers need to sleep during the day. A team of cleaners is employed to service the dongas.

Having arrived at the accommodation camp our FIFO worker has only time to take luggage to the donga before changing into protective work clothing and visiting the “crib room” where he collects food for the next 12 hours. He then boards another bus to the work site. Once there all workers attend a “pre start” meeting where they are briefed on safety issues, any relevant incidents in the preceding period, operational changes, equipment and infrastructure issues and are informed of their work tasks for the shift. These meeting can be as short as 10 minutes, but may be as long as 45 minutes depending on the operational mine site issues at the time. At the end of the 12 hour shift our worker boards the bus again, with his colleagues, for the trip back to the accommodation site.

This pattern is repeated every 12 hours. If the “swing” is reasonably short(say 2 weeks on and 1 off) our FIFO worker will work 12 hours every day (night or day shift) without break until he boards the bus to the airport for the flight home.

While the facilities on site are generous, our FIFO worker’s immediate priorities at the end of a 12 hour shift are to shower, eat, sleep and to wash work clothing ready for the next shift.

Safety is a high priority in mining- a notoriously dangerous occupation. Drug and alcohol testing is a feature of all mine sites and any worker found with drugs or alcohol in his system when on shift is immediately stood down from working and faces the prospect of termination. Self-monitoring of alcohol levels is encouraged with testing facilities available throughout the site. Any breaches of safety standards are treated very seriously and can also be a sackable offence.

So, our FIFO worker spends more time with his or her colleagues than in a traditional work environment. He relies on them not only for social support while living in isolated communities but also for the essential on the job teamwork so crucial in a difficult and dangerous occupation.

